Amendments to the Specification:

Please replace paragraph **[0007]** with the following rewritten paragraph:

[0007] To accommodate for image data having different compression needs, a scheme such as the mixed raster content (MRC) format may be used. Fig. 1 illustrates one exemplary embodiment of an MRC format. A document 100 is segmented into a ~~selector~~ high frequency plane 110 (110') and a background plane 120 (120'). Although two planes are shown in the figure, it could be N planes depending on the application. The ~~selector~~ high frequency plane 110 (110') contains high spatial frequency image data. The background plane 120 (120') contains smoothly varying low spatial frequency image data. Segmenting the document 100 into the ~~selector~~ high frequency plane 110 (110') and the background plane 120 (120') provides for different compression schemes to be applied to different planes. Thus, the most appropriate compression scheme for each image data may be applied.

Please replace paragraph **[0025]** with the following rewritten paragraph:

[0025] The binary text segmentation module 210 receives binary image data from a data source. The binary text segmentation module 210 extracts binary text image data from the binary image data. The speckle removal module 220 receives the binary text image data. The binary text image data may contain speckle noise due to halftoning techniques such as error diffusion. The speckle removal module 220 removes speckle noise from the binary text image data to generate an enhanced binary text image data. The enhanced binary text image data becomes the ~~selector~~ high frequency plane 110 of the MRC format. The lossless compression module 270 receives the enhanced binary text image data. The lossless compression module 270 compresses the enhanced binary text image data, for example, using CCITT G3/G4 compression scheme. Alternatively a token-based compression could also be applied to the text image data, for example using JBIG2 compression. The compressed enhanced binary text image data is sent to the wrapper module 290.

Please replace paragraph **[0026]** with the following rewritten paragraph:

[0026] In parallel, the enhanced binary text image data is sent to the subtraction module 230. The subtract module 230 subtracts the enhanced binary text image data from the binary image data to generate non-text binary image data. The binary image data to gray scale image data converter module 240 receives the non-text binary image data. The binary image data to gray scale image data converter module 240 converts the non-text binary image data to non-text gray scale image data. The scale module 250 and the enhancement filter module 260 are optional. The scale module 250 reduces the resolution of the non-text gray scale image data. For example, if the resolution of the non-text gray scale image data is X dpi, where X is an integer, the scale module 250 may reduce the resolution to X/2 dpi. The scaled non-text gray scale image data is sent to the enhanced filter module 260. The enhanced filter module 260 applies enhancement filters or tonal corrections to the scaled non-text gray scale image data to generate an enhanced non-text gray scale image data. The enhanced non-text gray scale image data becomes the background plane 120 of the MRC format. The enhanced non-text gray scale image data is sent to the lossy compression module 280. The lossy compression module 280 compresses the enhanced non-text gray scale image data, for example, using JPEG or JPEG2000 compression scheme. The compressed non-text gray scale image data is sent to the wrapper module 290. The wrapper module 290 creates one or more data files containing the compressed ~~selector~~ <u>high frequency</u> plane 110 and the background plane 120.

Please replace paragraph **[0039]** with the following rewritten paragraph:

[0039] FIG. 5 is a flowchart outlining one exemplary method of reformatting binary image data to MRC format. The operation starts at step S200 and continues to step S210. In step S210, binary image data is received. Next, in step S220, binary text image data is extracted from the binary image data. Then, in step S230, speckle noise is removed from the

binary text image data to generate an enhanced binary text image data, which becomes the ~~selector~~ high frequency plane of the MRC format. Next, in step S240, the enhanced binary text image data is compressed based on a lossless or token-based compression scheme. The operation continues to step S310.

Please replace paragraph **[0042]** with the following rewritten paragraph:

[0042] The binary image data to gray scale image data converter module 310 receives binary image data from a data source. The binary image data to gray scale image data converter module 310 converts the binary image data to gray scale image data. The gray scale image data segmentor 320 segments the gray scale image into high spatial frequency image data and low spatial frequency image data. The high spatial frequency image data becomes the ~~selector~~ high frequency plane 110'. The low spatial frequency image data becomes the background plane 120'. The high spatial frequency image data is sent to the lossless compression module 350. The lossless or token-based compression module 350 compresses the high spatial frequency image data, for example, using a CCITT G3/G4 or JBIG2 compression scheme. The compressed high spatial frequency image data is sent to the wrapper module 370.

Please replace paragraph **[0045]** with the following rewritten paragraph:

[0045] Figs. 7-9 are flowcharts outlining an exemplary operation of the gray scale image data segmentor 320. A gray scale image data may be divided into a plurality of blocks for processing efficiency. Referring now to Fig. 7, the operation starts at step S400 and continues to step S410. In step S410, a block is received. Then, in step S420, the block is initially classified as either UNIFORM, SMOOTH, WEAK_EDGE or EDGE, and its context as either TEXT or NON-TEXT. The block is then be reclassified as either SMOOTH or EDGE, depending upon the initial classification and the context. Next, in step S430, pixels in the block are segmented and placed on either the ~~selector~~ high frequency plane 110' or the

background plane 120' based on the classification of the block. The operation continues to step S440. In step S440, a decision is made whether there are any more blocks to be processed. If there are more blocks to be processed, then the operation continues to step S410. Otherwise, if all the blocks have been processed, the operation continues to step S450 where the operation ends.

Please replace paragraph **[0047]** with the following rewritten paragraph:

[0047] Fig. 9 is a more detailed flowchart of step S430 of Fig. 7. Fig. 9 describes the manner in which a block is segmented into two planes. The operation starts at step S4300 where measurement begins by first determining whether the block being processed has initially been classified as an EDGE. If so, the values v_p of each pixel in the block are first compared to a brightness threshold value t_s, wherein pixels that have values equal to or above t_s are viewed as "bright" pixels, while those with values below t_s are "dark" pixels. An EDGE block is segmented by placing dark pixels on the ~~selector~~ high frequency plane 110' (step 4330) and placing bright pixels on the background plane 120' (step 4340).

Please replace paragraph **[0048]** with the following rewritten paragraph:

[0048] If it is determined at step 4300 that the block is not an EDGE block, then the operation continues to step S4320. In step S4320, all pixels in the block are processed together, rather than on a pixel by pixel basis. Segmenting of SMOOTH (non-EDGE) pixels occurs as follows: if the block is in the midst of a short run of blocks that have been classified as SMOOTH, and further, all blocks in this short run are dark ($v<t$), then all pixels in the block is placed on the ~~selector~~ high frequency plane 110'. If the entire block is substantially smooth (i.e. in a long run) or is bright (in a short run of bright pixels), then all pixels in the block are placed on the background plane 120'. Further details of segmenting gray scale image data into text image data and non-text gray scale image data may be found in U.S. Pat. 6,400,844 B1 to Fan et al., which is incorporated herein by reference in its entirety.

Please replace paragraph **[0049]** with the following rewritten paragraph:

[0049] Fig. 10 is a flowchart outlining the another exemplary method of reformatting binary image data to MRC format. The operation starts at step S500 and continues to step S510. In step S510, binary image data is received. Next, in step S520, binary image data is converted to gray scale image data. Then, in step S530, the gray scale image data is segmented into high spatial frequency gray scale image data and low spatial frequency gray scale image data. The high spatial frequency gray scale image data becomes the ~~selector~~ high frequency plane 110'. The low spatial frequency gray scale image data becomes the background plane 120'. Next, in step S540, the high spatial frequency gray scale image data is compressed using a lossless or token-based compression scheme. The operation continues to step S590.

Please replace paragraph **[0051]** with the following rewritten paragraph:

[0051] It should be understood that various embodiments have been described based on reformatting binary images to 2-layer MRC files containing one ~~selector~~ high frequency and one background plane. However, it should be appreciated that reformatting binary images includes multi-mask MRC containing multiple mask planes for the different "gray" text in a page and a single background plane.